UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,055	09/13/2003	Lifeng Wang	MCS-041-03	7058

27662	7590	02/23/2005

LYON & HARR, LLP
300 ESPLANADE DRIVE, SUITE 800
OXNARD, CA 93036

EXAMINER
CHUNG, DANIEL J

ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/661,055	WANG ET AL.
	Examiner	Art Unit	
	Daniel J Chung	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.
2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-37_ is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1-37_ is/are rejected.
7)☐ Claim(s) _____ is/are objected-to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a)☐ All b)☐ Some * c)☐ None of:
  1.☐ Certified copies of the priority documents have been received.
  2.☐ Certified copies of the priority documents have been received in Application No. _____.
  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are not objected to by the Examiner.

Specification

Please review the application and correct all informalities.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-37 are rejected under 35 U.S.C. 102(b) as being anticipated by

Deering. (6,169,554)

Regarding claim 1, Deering discloses that the claimed feature of a computer

implemented method for rendering graphics on an embedded device, comprising:

inputting [402] rendering data [i.e. "z-value of primitives"] in a first format [i.e. "floating

point format"]; converting [408] the rendering data from the first format into a variable

length fixed pint format [i.e. "fixed point format"]; processing [410,412] the rendering

data in the variable length fixed point format ["fixed point format"]; and rendering [418]

the processed rendering data on the embedded device. (See Fig 8, Fig 9, Abstract line

16-25, col 4 line 49-60, col 12 line 63-65, col 16 line 30-40)

Regarding claim 2, Deering discloses that using a normalized homogenous

coordinate [i.e. "homogeneous coordinate"] system for vector operations on the

rendering data.(See col 2 line 10-16, col 11 line 6-27)

Regarding claim 3, Deering discloses that the first format is at least one of

floating point format [400]; fixed point format. (See Fig 8)

Regarding claim 4, Deering discloses that creating a mathematical library [i.e. by

"application software"] for processing the rendering data in a variable length fixed-point

format [410,412]. (See Fig 8, col 5 line 66-67)

Regarding claim 5, Deering discloses that performing fixed point mathematical

operations [410, 412] contained in the mathematical library on the rendering data. (See

Fig 8)

Regarding claim 6, Deering discloses that computing graphic functions [410, 412]

contained in the mathematical library using the rendering data. (See Fig 8)

Regarding claim 7, Deering discloses that predicting a range of the processed rendering data and truncating any data outside the range [i.e. clipping ; 418]. (See Fig 8)

Regarding claim 8, Deering discloses that the embedded device includes a mobile computing device using Direct3D for mobile devices. (See Fig 3, Fig 8, as Direct3D is well know as 'application program interfaces')

Regarding claim 9, claim 9 is similar in scope to the claim 1, and thus the rejection to claim 1 hereinabove is also applicable to claim 9.

Regarding claim 10, claim 10 is similar in scope to the claims 1 and 4, and thus the rejections to claims 1 and 4 hereinabove are also applicable to claim 10.

Regarding claim 11, claim 11 is similar in scope to the claims 5 and 6, and thus the rejections to claims 5 and 6 hereinabove are also applicable to claim 11.

Regarding claim 12, claim 12 is similar in scope to the claim 7, and thus the rejection to claim 7 hereinabove is also applicable to claim 12.

Regarding claim 13, claim 13 is similar in scope to the claim 7, and thus the rejection to claim 7 hereinabove is also applicable to claim 13.

Regarding claim 14, claim 14 is similar in scope to the claim 8, and thus the rejection to claim 8 hereinabove is also applicable to claim 14.

Regarding claim 15, claim 15 is similar in scope to the claims 1 and 8, and thus the rejections to claims 1 and 8 hereinabove are also applicable to claim 15.

Regarding claim 16, claim 16 is similar in scope to the claim 3, and thus the rejection to claim 3 hereinabove is also applicable to claim 16.

Regarding claim 17, claim 17 is similar in scope to the claim 10, and thus the rejection to claim 10 hereinabove is also applicable to claim 17.

Regarding claim 18, claim 18 is similar in scope to the claims 1-2 and 4-8, and thus the rejections to claims 1-2 and 4-8 hereinabove are also applicable to claim 18. In addition, Deering further discloses that creating specialized buffers [i.e. "Z-buffer"] on the computing device to store the NHCS fixed point data. (See col 3 line 31-42, 'memories/buffers' in Fig 4-5, Fig 7)

Regarding claim 19, claim 19 is similar in scope to the claim 3, and thus the rejection to claim 3 hereinabove is also applicable to claim 19.

Regarding claim 20, claim 20 is similar in scope to the claim 3, and thus the
rejection to claim 3 hereinabove is also applicable to claim 20.

Regarding claim 21, Deering discloses that converting 3D coordinates of the
NHCS fixed-point data into 2D screen coordinates [i.e. "screen space"]. (See col 2 line
33-56, col 3 line 11-30)

Regarding claim 22, claim 22 is similar in scope to the claims 1 and 8, and thus
the rejections to claims 1 and 8 hereinabove are also applicable to claim 22.

Regarding claim 23, claim 23 is similar in scope to the claims 1-3, and thus the
rejections to claims 1-3 hereinabove are also applicable to claim 23. In addition, the
method of utilizing "a maximum value" is shown in the teaching of Deering. (See col 12
line 30-62, col 14 line 48-51)

Regarding claim 24, Deering discloses that determining a maximum fixed-point
buffer size of a destination buffer. (See Abstract line 16-19, col 4 line 49-52, col 12 line
30-62, col 14 line 48-51, col 17 line 33-40)

Regarding claim 25, Deering discloses that scaling the maximum value to the
maximum fixed-point buffer size. (See Abstract line 16-19, col 4 line 49-52, col 12 line
30-62, col 14 line 48-51, col 17 line 33-40)

Regarding claim 26, Deering discloses that recording a shift digit value used in
the scaling. (See Abstract line 16-19, col 4 line 49-52, col 17 line 33-40)

Regarding claim 27, Deering discloses that using the shift digit to normalize the
remaining values. (See col 13 line 26-31, col 15 line 25-34)

Regarding claims 28-31, claims 28-31 are similar in scope to the claims 1-4, and
thus the rejections to claims 1-4 hereinabove are also applicable to claims 28-31.

Regarding claims 32-33 and 35, Deering discloses that an
index/vertex/command buffer stores indices/vertex information/wrapper. (See
'memories/buffers' in Fig 4-5, Fig 7)

Regarding claim 34, Examiner takes office notice that utilizing of a wrapper of
command package is well know in an analogous art to provide increased flexibility in the
format of the command.

Regarding claim 36, Deering discloses that a transform and lighting module
prepares the converted rendering data for a rasterizer. (See Fig 8)

Regarding claim 37, claim 37 is similar in scope to the claim 4, and thus the rejection to claim 4 hereinabove is also applicable to claim 37.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Chung whose telephone number is (703) 306-3419. He can normally be reached Monday-Thursday and alternate Fridays from 7:30am- 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael, Razavi, can be reached at (703) 305-4713.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306 (Central fax)

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

djc
February 11, 2005

MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600